

Borehole

**21-27-11****Log Event A****Borehole Information**

Farm : <u>BX</u>	Tank : <u>BX-102</u>	Site Number : <u>299-E33-61</u>
N-Coord : <u>45,537</u>	W-Coord : <u>53,145</u>	TOC Elevation : <u>653.23</u>
Water Level, ft :	Date Drilled : <u>11/30/1947</u>	

**Casing Record**

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.313</u>	ID, in. : <u>8</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>150</u>	

**Borehole Notes:**

According to the driller's log, this borehole was drilled in November 1947 to a depth of 150 ft using 8-in. casing. The drilling report indicates the borehole casing was perforated from 40 to 100 ft with five holes per foot. The borehole was apparently not grouted. The casing thickness is presumed to be 0.313 in., on the basis of the published thickness for schedule-40, 8-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately 0.5 ft below the ground surface.

In January 1971, the casing was pulled up to a depth of 140 ft to recover the "casing spear." The casing was lowered back to 150 ft.

**Equipment Information**

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>04/1997</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

**Log Run Information**

Log Run Number : <u>1</u>	Log Run Date : <u>06/18/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>1.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>29.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>06/19/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>137.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>115.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>06/23/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>116.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>38.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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**21-27-11****Log Event A**

Log Run Number :	<u>4</u>	Log Run Date :	<u>06/24/1997</u>	Logging Engineer:	<u>Bob Spatz</u>
Start Depth, ft.:	<u>39.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>28.5</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Log Run Number :	<u>5</u>	Log Run Date :	<u>06/24/1997</u>	Logging Engineer:	<u>Bob Spatz</u>
Start Depth, ft.:	<u>2.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>0.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

### Analysis Information

Analyst : S.D. BarryData Processing Reference : MAC-VZCP 1.7.9Analysis Date : 07/08/1997

#### Analysis Notes :

This borehole was logged by the SGLS in five log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.330-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137, Co-60, Sb-125, and processed uranium were detected around this borehole. The presence of Cs-137 was measured continuously from the ground surface to a depth of 7.5 ft and almost continuously from 23 to 95.5 ft. The presence of Co-60 was detected continuously from 81 to 83.5 ft, almost continuously from 89 to 101.5 ft, intermittently from 101.5 to 115.5 ft, and continuously from 115.5 to 119 ft. Sb-125 contamination was detected continuously from 73.5 to 101 ft and intermittently from 101 to 107.5 ft. Processed uranium was measured continuously from 72 ft to the bottom of the logged interval (137.5 ft).

The K-40 concentration values increase at about 30 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank BX-102.

#### Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.



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A combination plot includes the man-made, natural radionuclides and the total gamma derived from the spectral data.